Looseleaf No. 106

BABY BIRDS

by

VELMA D. WHIPPLE
Raymond Foundation

MUSEUM STORIES

CHICAGO
NATURAL
HISTORY
MUSEUM

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Baby Birds

Birds hatch from eggs of all colors—blue, green, brown, white, speckled, and plain. Besides coming in various colors, the eggs differ greatly in size, shape, and number, according to the type of bird.

Hungry baby sparrows

Among modern birds the hummingbird produces the smallest eggs, the ostrich the largest. In prehistoric times the elephant bird of Madagascar laid an egg fifteen inches long.

From this great variety of eggs comes a comparable variety of birds. While the eggs are being incubated, or protected from cooling and overheating, the young bird is developing and using up the food within the egg. By the time it is ready to hatch, all the food is used up, and the baby bird fills the shell.

Newly hatched birds may be divided into two large groups: those wide-awake, covered with down, and quite able to take care of themselves, and those hatched naked and helpless, with eyes closed. Generally speaking, ground-nesting birds like the sandpiper and meadowlark belong to the first group; tree-nesting birds like the robin and bluebird to the second.

After baby birds have been hatched, they are brooded or covered by the old birds to protect them from cold and heat.

Young birds grow very rapidly. "It has been said that if a human baby grew at the rate that a bird baby does, it would weigh over a hundred pounds by the time it was ten days old."

All this growing means that young birds need an enormous amount of food—in fact, they eat almost continually from dawn to dusk.

Usually the hungriest baby opens his mouth the widest, sticks his neck out the farthest, and gets fed before the rest. Fortunately, nature has provided a control for him; when a greedy baby has had more than he needs, the muscles contract, and he can swallow no more. Then the parents can concentrate on stuffing the rest of their hungry offspring.

A few figures will help you to picture the parent birds' problems:

Young crows require at least one-half their weight in food merely to exist. They *can* consume their full weight in food in a day.

One baby robin swallowed 14 feet of earthworms in one day. Another ate 68 worms—or about 17 feet.

Baby hummingbirds are usually fed once every 20 minutes.

A baby rosebreasted grosbeak was fed 58 times between 4 and 5 P.M.

A pair of grosbeaks fed their young 426 times in 11 hours.

A pair of house wrens came to the nest with food 1217 times in 15 hours and 45 minutes of daylight, or more than once a minute.

Young birds can't fly until they lose their down and acquire real feathers. The first few experimental flights are fun to watch, for the short wings and undeveloped tail make the baby bird wobble uncertainly, as a human baby toddles unsteadily. The parent birds are usually nearby to encourage and protect their offspring until they are able to reach the security of the treetops. After that the babies are pretty much "on their own."

As the young birds grow, their plumage gradually takes on the adult color and pattern, and their "voices change" from the baby cries for food to the adult calls and songs. The amount of time necessary for these changes varies, of course, in different species.

After the young bird becomes an adult, it will find a mate, build a nest, and take on the responsibilities of raising a family —and once again we're back to the colored and speckled eggs.

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Looseleaf No. 107

BABY SNAKES

by

MIRIAM WOOD
Raymond Foundation

MUSEUM STORIES

CHICAGO
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Baby Snakes

Young snakes are not often regarded as attractive, and most people do not have a desire to fondle and play with these little wriggly babies as they do with kittens and puppies. This

Baby snakes emerging from the eggs. Snake eggs hatch out slowly, sometimes several days apart. Each little snake cuts the soft, leathery shell with his egg tooth, sometimes sticking his nose out and then retreating again.

feeling has been learned from older people; should you be fortunate enough to be brought up in a family where snakes are looked upon with interest, no doubt you would be just as anxious to pick up one of these tiny babies and rub its glistening scales as to rub the fur on your kitten.

Think for a minute how helpless most babies are; the most helpless of all is the human baby, or you and I, at birth. We spend about one-fourth of our lives learning how to take care of ourselves and getting educated. For a short time the young rabbits, puppies, kittens, chickens, and birds are all dependent on their mothers and fathers for food, protection from enemies, and transportation, and their parents also teach them how to take care of themselves. Some learn more quickly than others.

But what about a baby snake? He is independent from the very first instant of his life. He is fully equipped to take care of himself, to get food, to move about, and to defend himself against his enemies; he is even born with about as much intelligence as he ever acquires. And he is the exact miniature of

his mother. He matures very quickly and is entirely "grown up" in two years.

Some snakes hatch from eggs and some are born alive. Among the snakes that bring forth their young alive, you are probably most familiar with the garter and water snakes, rattlesnakes and copperheads. Among the snakes that hatch from eggs are the racers, hog-nosed, bull, and green snakes.

Take one of these egg-laying snakes, for instance the blue racer, the fastest snake in the Chicago region. The mother snake finds a rather protected spot—under a log, or a pile of leaves or rocks—and there she lays her eggs. She leaves them immediately and has nothing more to do with them, as is the case with most snakes; the eggs take several weeks to hatch, depending somewhat upon the temperature. The egg shells are not brittle like hens' eggs but are tough, leathery, and flexible. When the young snake is ready to come out of his egg, he may have a little difficulty when he tries to pierce this tough covering. However, he has one tool to assist him—a little protuberance on one of the skull bones; this bump is best described as a special tooth, an egg tooth or egg cutter, and it sticks out through the snake's mouth. With this the baby snake can cut or slit the shell in several places until he can get his nose through. He may stop and rest thus, "half born," for several hours before pushing all the way out.

Early in life, the time varying from a few hours to a few days after birth or hatching, the young snake sheds his first skin. He has nobody to help him disrobe; he has to wriggle out of that skin alone. He will shed his skin many times during his life, the number of times depending upon how fast he grows, the amount of food he eats, and the temperature and humidity.

Snakes can go for months or even a year, if necessary, without food. This is as true of the baby snakes as the adults; and since most snakes are born in the fall of the year, they sometimes do not find any food before they go into their winter hibernation. It may therefore be late spring or even summer before the young snakes get their first meal—many months late. Each snake, young or old, looks after itself.

Looseleaf No. 108

RED FOX FAMILIES

by

MIRIAM WOOD
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MUSEUM STORIES

CHICAGO
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Red Fox Families

The male red fox is a model father. In very few mammal families does the male take any active care of the young; he usually has nothing to do with the little ones and in some instances would even harm or kill them. But the dogs, wolves and foxes form an exception to this rule.

The young foxes, or pups, are born around April or May. Usually the home is an underground den, but it is sometimes in a hollow log or under a pile of brush. One litter of pups may

A family of red foxes

number from four to nine. Each new-born fox has his eyes closed, is covered with lead-colored fur, and looks more like a kitten than a fox. For the first eight or nine days the male fox is not allowed in the den; he faithfully brings food and leaves it outside the den where the mother can get it. The little ones feed entirely on mother's milk during this time.

The pups begin to open their eyes and see after a week or so but do not venture out from the den for three or four weeks. Then they begin to eat the food brought in by the parents—berries, mice, insects, rabbits, game birds and muskrats. They become quite active and play with each other with as much energy as young puppies do. They require almost constant watching, and the parents seem to take turns at baby tending and getting food. At the sign of danger the pups hurry into the den, for various larger animals, like the wolf, eagle and lynx, are eager to pounce upon them.

The fox is noted for his intelligence and cunning. These traits are noticeable particularly in his methods of getting food, and the young ones must be taught the tricks of the foxes' trade. For instance, they are taught how to hunt and track down food by scent and sight. The first meals are brought to the little ones and placed outside the den; but gradually the father leaves the food farther and farther away, and it is hidden in the grass. If the hungry pups want to eat, they must scent and hunt down that food. Also, as soon as the foxes are able to walk, they are taught how to stalk beetles, grubs and field mice and pounce upon them. They are taught to "freeze" and wait for an animal to make the next move before they swoop down upon him. They have been known to stand thus silently for twenty minutes—ears pointed, tail slightly up, perhaps one paw lifted, nose directed toward the prey, and every inch of the animal at complete attention.

As the young ones grow older, they grow bolder; each day they dare to go farther from the den; they catch more of their own food and become more alert for all danger. They gradually learn the cunning tricks attributed to foxes; they begin to back-track when being hunted; they swim downstream, run walls, climb trees, and make numerous combinations of tactics to mislead the hunters.

By fall the fox family breaks up; the pups have learned to take care of themselves; they are adults. Each seeks a hunting ground where he lives more or less alone until early spring when he finds a mate.

Loose-leaf No. 109

INSECT GUESTS IN OUR GARDENS

by

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MUSEUM STORIES

CHICAGO
NATURAL
HISTORY
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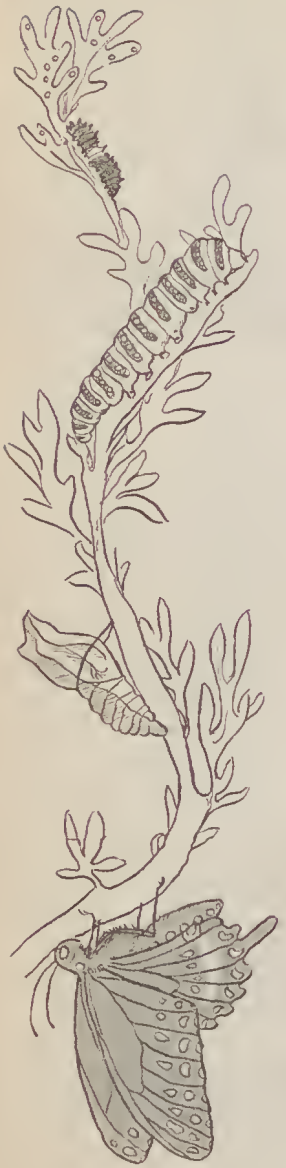
Series XLIV, No. 4 March 24, 1945

Insect Guests in Our Gardens



Near the top of the carrot plant are two caterpillars, below them is a "chrysalis," and at the bottom the adult. These are the various stages in the life of a black swallowtail butterfly.

Our gardens teem with insect life. Although we gardeners do have some insect allies, it sometimes seems as though we're raising plants not for ourselves but for our uninvited insect guests. They like the roots, stems, leaves, and fruits as much as we do!

The most common, and in many ways the most interesting, of our garden insects, is the ant. Baby ants and bees, too, are especially cared for by ant or bee nursemaids who feed and protect them until they are able to shift for themselves. They receive this special care because ants and bees are social insects among which division of labor has been developed. The "queen" attends only to the production of eggs. The rest of the colony is composed of "soldiers" and "workers." Among the workers are the nursemaids, whose sole job is to care for the young.

Most gardeners recognize the large, ugly caterpillar called the "tomato worm." When fully grown, the "worm" is about the size and thickness of your middle finger. It has a strange horn-like growth on its rear end and is called by some people a "horn worm." This larva or caterpillar eventually turns into a moth.

Everyone who has had a garden has watched the pretty white cabbage butterflies that flutter in and out among the plants. In a field of cabbages they may be so numerous as to make one think of a snow storm. These butterflies lay eggs that

hatch into tiny green caterpillars with such ferocious appetites that they often make lace-work of the cabbage leaves and leave nothing edible for us. This thief in our gardens was introduced from Europe, and in a short time it had invaded gardens from coast to coast. Our own native cabbage "worms" turn into yellow butterflies.

Have you ever looked at the grasshoppers and crickets in your garden? They come in all sizes and many colors. The young, called "nymphs," are wingless. Some adults are so small they look like young insects, but the adults always have wings. It would seem that the wingless nymphs might be easy prey for their bird enemies, who like to eat them. This is not true, however, for the nymphs can protect themselves by hopping. If we could jump as well as they can, we could sail more than 600 feet at a leap.

If you have ever combined fishing with gardening, you are no doubt well acquainted with the white grubs that are also guests in your garden. These grubs are the larvae of June beetles, and sometimes they injure the roots of our garden plants. Some of these beetle babies remain in the larval stage for two or three years. Then they grow into the big "June bugs" that bang against the street lights and screens in early summer.

Perhaps some day you will find on your carrot leaves some tiny black caterpillars or some larger green ones with black markings. Here will be your chance to learn about butterflies first hand, for these are the caterpillars of the black swallowtail butterfly. If you remove several of the larvae, keep them in a screened box and give them carrot leaves to eat, they should develop into pupae. The pupa of a butterfly is called a "chrysalis." It is while the insect is a chrysalis that the magical change from ugly caterpillar to beautiful butterfly takes place.

Gardeners cannot afford to ignore the insect guests in their gardens. Watching these guests (whether they are helpful or destructive) is an interesting and profitable game for all gardeners.

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Looseleaf No. 110

COTTONTAIL RABBITS

by

MIRIAM WOOD
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MUSEUM STORIES

CHICAGO
NATURAL
HISTORY
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Cottontail Rabbits

The cottontail rabbit is one of the wild animals in our Chicago region that we know best. We find it in our yards and gardens as well as in the open woodlands and meadows. A familiar sight to all of us is a cottontail rabbit bounding

A family of cottontail rabbits

across field or road, its white bunchy "cotton" tail flashing through the thickets and signaling its retreat.

The timid cottontail has many enemies. Almost every meat-eating animal and bird preys on it, and only because it has the ability to hide and dodge, and also to produce many young, does the species survive at all.

A mother rabbit usually has three or even four broods a year and each brood numbers from four to seven young ones. Baby rabbits are born naked and with their eyes closed. They look more like mice than rabbits, and each one weighs about an ounce. They are born in a nest so cleverly concealed in the grass that even experienced hunters have difficulty in locating it. The nest is lined with fine grass and leaves, and with soft fur that the mother rabbit pulls from her belly with her paws and teeth. In order that the naked young ones may be well protected from the cold, the mother rabbit pulls out more of her fur and spreads it over the little ones like a blanket.

The father rabbit seems to pay no attention to the baby rabbits and does not even help to feed and protect them. The

mother guards the nest carefully. She usually remains close by during the day; at night she forages for her own food of young green shoots, buds, berries, and inner bark of trees. Between her trips away from the nest for food she feeds her young ones. They live on her milk for about three weeks.

The little rabbits' first coat of soft, fine hair appears after a week or so and it grows thicker each day. Every time the mother rabbit uncovers and recovers her babies, some of the loose fur of the blanket blows out of the nest until finally it is nearly all gone. By this time, after three or four weeks, the young rabbits are warmly clad in their own fur coats and are exact miniatures of their mother. They begin to forage for themselves, to hunt the young tender green plants for food. As they move from place to place, they learn to seek the protection of shrubs, clumps of grass, and large plants. At the first sign of danger, they become very still and often remain almost motionless for many minutes or even for an hour or more; the only visible movement is the twitching of their noses.

By wintertime, many of the rabbits have been killed by their enemies but out of the great number of broods there are many rabbits left to live on through the winter. Cottontails do not hibernate and so they must eat during the winter months; since they do not store up food in advance they must continue to hunt for food all winter in spite of the cold and snow. Their tracks and paths crisscrossing in the snow tell a part of the story of their constant search for the few remaining berries, buds, and bark.

Spring finds the rabbits lean and hungry. They eat and eat on any young green shoots available; they often invade our gardens. After a few weeks of springtime feasting, last summer's baby rabbits are well fed again. They are fully grown and ready to produce broods of young cottontails.

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Looseleaf No. 111

FROG EGGS AND TADPOLES

by

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MUSEUM STORIES

CHICAGO
NATURAL
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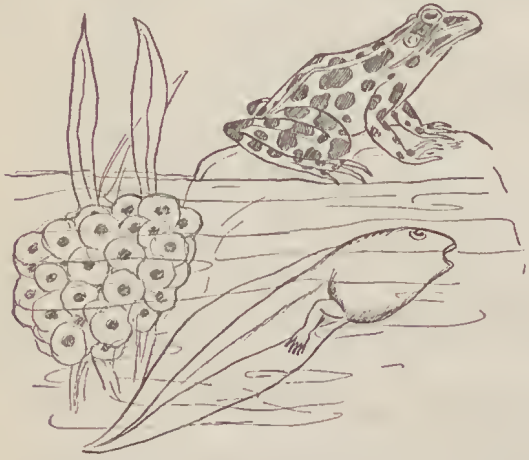
Series XLIV, No. 6 **April 7, 1945**

Frog Eggs and Tadpoles

Frog-egg collecting is a fine thing to do in early spring, when you want to splash around in muddy pools.

Such an expedition should be made in late March or early April. Take along some jars (for the eggs and extra pond



Leopard frog eggs, tadpole, and adult

water) and extra socks and shoes, or, better yet, rubber boots. Boots serve as protection from broken glass and rusty iron.

Usually the eggs of the common leopard frog will be found in shallow, sluggish waters. They are embedded in a semi-clear jelly-like mass about five inches in diameter and two and one-half inches thick. Such a mass may contain as many as 5,000 eggs. Each egg is about one-sixteenth of an inch in diameter and black at one pole, white at the other. So many dark eggs close together make the whole mass appear dark.

If you already know the leopard frog, you're probably wondering how a three or four inch animal manages to lay an egg mass larger than herself. Well, she doesn't! Each egg is surrounded by a jelly-like substance that quickly swells in water.

The development of the frog is one of the few instances in which anyone (with the use of a hand lens) may observe the growth of a complicated vertebrate animal from the very beginning—the one-celled egg stage. Zoology text books will show how the eggs look when they start to grow by dividing

first into two cells, then into four, and, finally, into the millions of cells that make a frog.

A little black animal scarcely three-eighths of an inch long will hatch from the capsule-like egg about ten days after it has been laid. This tiny bit of life will at first stick to the jelly-like mass from which it wriggled; then it may swim around blindly until it touches something else that will support it.

About two weeks after the tadpole has hatched, it begins to feed by nibbling at grasses and scraping off tiny particles of food from objects in the water. Minute comb-like structures surrounding the horny beak aid in securing food.

Tadpoles in aquaria will eat small pond plants, pieces of lettuce, and tiny bits of hard-boiled egg. In feeding tadpoles give them only one-tenth of the amount you feel they should have—it will probably be too much; uneaten food only decays and produces bad odors.

Tadpoles get their oxygen from the water as fishes do; frogs breathe air as you do. The period during which the tadpole develops into a true frog includes some wonderful changes. You can see such changes as the slow growth of the hind legs (the front legs grow at the same time but are concealed), the loss of the tadpole mouth, and the appearance of an entirely different one. There are other changes that you cannot see, such as the shortening of the intestine and the switch from gills to lungs. While these changes are taking place, your pets will want little or no food.

If you are fortunate enough to bring tadpoles through these difficult transitional stages, you will need something at the surface (floating or jutting out) for your young frogs. You will also need screening to keep your pets in their container.

Adult frogs prefer live food that moves (insects, meal worms, etc.). You can gather insects by rapidly waving a butterfly net through high grass or by shaking bushes over an umbrella held upside down. Some frogs will eat bits of chopped meat waved about on the end of a stick.

Good luck with your collecting expedition, and remember that only the most careful and fortunate foster parents manage to rear baby frogs!

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Looseleaf No. 112

LAND OTTERS

by

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MUSEUM STORIES

CHICAGO
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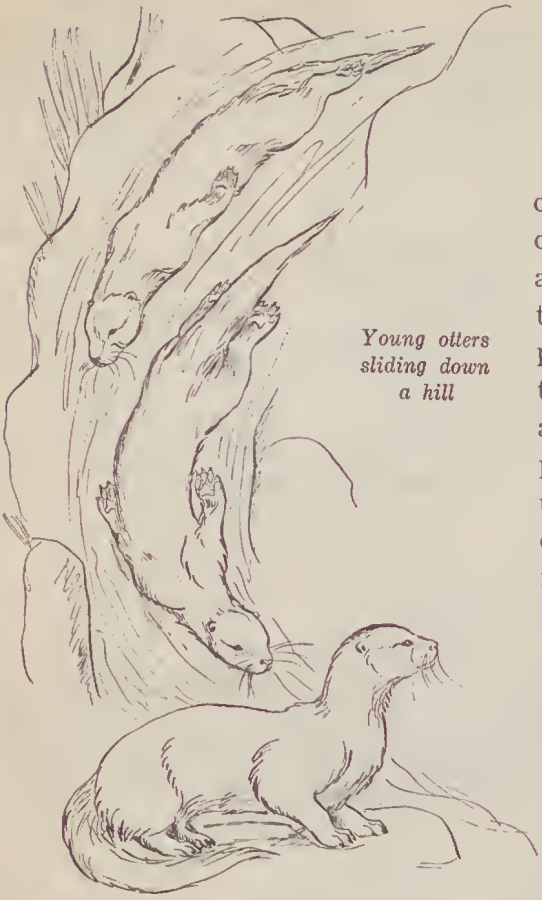
Series XLIV, No. 7 **April 14, 1945**



Young otters sliding down a hill

Land Otters

Land otters, young and old, are the most playful of all the animals. You are probably familiar with the frolicsome rompings of puppies and kittens, but they gradually quiet down and lose some of their playful ways as they grow up. The otters, on the contrary, do not lose their merry ways of playing; they always seem to enjoy tussling with each other, rolling, pulling, splashing in the water and sliding on ice.

The otter spends most of his life in or near the water. The home or den is in a burrow in the bank of a stream or river; it may be close to the water, or it may be back from the river at the base of a cliff. The tunnel widens out toward the back into a room which contains the nest made of sticks, leaves, and grass. Here the baby otters, from one to three in number, are born in April or May. They remain in the den for about a month until their eyes are open. Then the mother takes the babes out for their first trip. She picks them up by the nape of the neck or persuades them to mount on her back; then she carries them to the water. They don't want to go into that water at all; they don't like it; but in they go and she "ducks" them under. They cry and cry, even shedding real tears, but she continues to teach them to swim by swimming with them for a time and then leaving them alone for a few minutes. As soon as she disappears under water, they begin to cry and call her with loud bird-like chirps. Then she

comes up from beneath the surface and supports them on her back again.

After the first few lessons in plain, ordinary swimming, she teaches them to dive and dart after crayfish, frogs, and fish. They soon become very skillful in the water; they swim rapidly, first under water, and then at the surface in a rolling motion. They stick their heads in the muddy holes after eels. Whatever they do seems to be great fun.

The most remarkable sport of these good-natured otters is coasting or sliding. The entire family of otters enjoy this game together. They find a clean, steep clay bank sloping down into deep water. Then the otters, one after the other, shove off and slide down, splash gleefully in the water, and then quickly climb the hill again and take another slide. The slide becomes smoother and slicker with the mud and water, and the otters go faster and faster. They seem to vie with each other as to which can get in the most slides. Sometimes they stop at the top and wrestle with each other for a while.

The same slide is used day after day and even year after year. It may be used in both summer and winter. The winter slide must end in deep water which does not freeze; the otters shoot down this icy slide with lightning speed, splash in the icy cold water for an instant, and then rush up the hill again. As they turn about in the soft snow, making their way from the hilltop, they often push the snow into snowballs that go rolling about with the otters as they chase each other. This winter coasting seems to be more fun than the summer kind because the snow packs down and becomes covered with ice on the slide; it becomes as slick as glass and the sheer joy in whizzing down such a hill appeals to the entire otter family.

Looseleaf No. 113

WHITE-TAILED FAWNS

by

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Raymond Foundation

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CHICAGO
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White-tailed Fawns

In the north woods the does and their fawns can often be seen on the lake shores in the early evenings of midsummer. They wade daintily into the water, picking their way among the pond lilies. Every motion they make is graceful and

A white-tailed fawn

rhythmical as they choose tender water plants beneath the surface for their evening meal.

Although the white-tailed deer is one of our best-known mammals, not much has been written about the fawns. Their story begins in May or June when they were born in a secluded thicket near the lake. They probably weighed four or five pounds at birth. Although they could stand on their slender legs when they were only one day old, they were a bit wabbly and spent much of the first month hiding and resting in the thicket.

At first the fawns tried out their spindly legs by running and jumping stiff-legged straight up or to the left or right. Later they learned to leap over logs and brush piles and to disappear quickly into the woods when danger seemed near. They learned to swim, too, for deer are very much at home in the water and are strong swimmers.

During the heat of the day, the deer rested in the cool shade of the trees. Seldom were they seen during the day

unless they were disturbed. If they were frightened from their hiding place, they would speedily vanish with long, springy bounds, their tails flung high as a warning to other deer near-by. The name "white-tailed deer" came from this habit of displaying the white under side of the tail.

By the beginning of July the fawns were sturdy little creatures, and now, in late July, they follow their mother when she steals forth in search of food at dawn or dusk. Up to this time the babies have been raised on their mother's milk, but now they are beginning to eat young buds and juicy water plants.

By the end of September the fawns will be much less dependent upon the doe and will be living entirely upon buds, leaves, and bark. At this time, too, they will shed their dappled baby coats and acquire heavier, gray-tan winter coats. The spots that marked their youth will be almost unnoticeable. The hairs of the winter coat will be coarser and will stand out, giving the fur a rough appearance and forming air spaces that make the coat warmer.

From spring until late fall the bucks ignore their families. During that time their antlers develop. Then, as winter approaches, the bucks rejoin the does and young, and the deer tend to gather in small bands.

The white-tailed deer thrives in our north woods where forests have been cut or burned over, and there are small lakes, swamps, and bogs. Here, too, is man—the lumberjack, the camp caretaker, and the forester—and where there is man there is protection from animal enemies. Where there is man there are often gardens, too, and the deer frequently raid them on moonlit nights. Even the fawns are taught to clear the garden fences, though they are sometimes made exceptionally high to keep the marauders out.

For all their youthful ungainliness baby deer have an unexplainable grace. They are affectionate, gentle, and appealingly helpless. That is why so many toy deer are sold each year, and why books and motion pictures about fawns are so popular with young and old.

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